ON SCENE

THE NATIONAL MARITIME SAR REVIEW

DEPARTMENT OF TRANSPORTATION

U. S. COAST GUARD

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ADVICE TO COXSWAINS

A recent incident during a water festival gives us an example of how a little more prudence and forethought initially could have prevented the Coast Guard from suffering much anguish later.

In this case, a private speedboat was proceeding at about 30 MPH in an area where vessels, for safety purposes, were directed by regatta regulations to proceed at slow speed (5 MPH) while a water festival was taking place.

A C. G. Reserve manned patrol boat intercepted the speeding craft, ordered it to stop, and came alongside. After the speedboat acknowledged and hove to, a line was passed between the two boats. An active duty manned 41' UTB came alongside the Reserve boat to conduct the boarding. Due to the difficulties perceived in going on board the errant craft (not the least of which was the uncooperative and obstreperous attitude of the occupants), no attempt to do so was made. Instead, the operator was informed that, due to numerous violations, his use of the speedboat was being terminated, and that he should standby to be towed.

However, as the Reserve boat dropped her lines to the speedboat so that the 41' UBT could maneuver into position to tow, the speedboat operator suddenly put his engine in gear and slowly proceeded downriver. He, with the 41' UBT in close pursuit, weaved around numerous other private boats that were in the area as spectators at he water festival.

The 41' UBT turned on her blue light and hailed the speedboat with her megaphone, both of which the speedboat blithely ignored. Then, as the speedboat began pulling away, the CG UTB radioed to other Coast Guard and Coast Guard Auxiliary patrol craft, requesting them also to attempt to intercept and apprehend the speedboat if it came into their area.

Shortly, the runaway was boxed in, but suddenly increased speed and dodged the posse, pulling away at over 30 knots. After a brief chase, at high speeds, the speedboat turned into a lagoon, where a 19' patrol boat and the 41' UTB caught up with it, terminated the use of the craft and cited the operator for numerous violations.

Although this sounds like a happy ending, it was not. The high

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speed chase had resulted in wake damage to several spectator boats, with claims against the government exceeding $2000. One person was thrown into the water! The skies were clear and the visibility excellent, numerous Coast Guard and Coast Guard Auxiliary Craft (with good comms between them)were in the area and the configuration of the river offered no undetectable nooks available for instant refuge. Thus, there was almost no chance whatsoever that the speedboat could have escaped apprehension, even if the 41' UBT had not proceeded at high speeds in the area congested with pleasure boats.

So, coxswains, remember to weigh carefully the benefits against the liabilities before you go dashing off on a high speed chase.

IMCO'S SEARCH AND RESCUE GROUP MEETS

Considerable progress towards the drafting of an International Convention on Maritime Search and Rescue was made by the Inter-Governmental Maritime Consultative Organization's group of experts at its fourth session at IMCO Headquarters in London from 11 to 15 October 1976.

The group considered the draft, its technical annex, and also the draft of a proposed Maritime Search and Rescue Manual which has been prepared by a special editorial group.

The group of experts, which included representatives from 20 countries, has prepared a report on its work for IMCO's Maritime Safety Committee. The group will hold its fifth meeting next May, when it expects to conclude its work both on the draft Convention and the manual.

After consideration by the Maritime Safety Committee, the final drafts will be submitted to an international conference scheduled to meet in the Spring of 1978.

The SAR Manual is designed to assist not only national governments, which are responsible for initiating search and rescue operations in the event of an accident at sea, but also other personnel who may be involved in the operation. Since such operations normally involve aeronautical as well as maritime services, the manual has been aligned as closely as possible with the Search and Rescue Manual of the International Civil Aviation Organization.

A task which was completed at the fourth session was a revision of the existing IMCO Merchant Ship Search and Rescue Manual. A new edition of this volume should appear in the near future.

LORAN C RECEIVER/PLOTTER: EXCELLENT SAR TOOL

By ENS J.M. BUONAIUTO, USCGR

The navigational capability of the search craft is, perhaps, the most important factor in the effective execution of any search pattern, particularly if the search is to take place offshore beyond the range of visual reference points. The search craft is tasked with locating a datum or commence search point (CSP) and once there, executing a pattern while maintaining a desired track spacing. Later on, probability of detection (POD) must be computed, i.e., search results must be measured and as the SAR Manual (CG-308) points out, the POD nomographs are valid only when the tracks of the search pattern are accurately followed. There have been instances when elaborate and professional "best laid plans" of SAR Mission Coordinators have gone astray due to the personnel in the field failing to execute them properly, and all too often navigational error is to blame.

LORAN C has received tremendous praise throughout the Coast Guard and the civilian maritime community. As a navigational aid, the fact that a search craft is so equipped permits the SMC to allow for a smaller navigational error safety factor when computing total probable error for search area size.

The LORAN C RECEIVER/PLOTTER takes the guesswork out of search execution and POD computation. It does so by providing the search vessel's conning officer with a continuous, graphic presentation of the movement of his vessel. The plotting component is an attachment to the LORAN C receiver which transposes the LORAN C fix input to an ink stylus which responds to and records the geographic movement of the vessel.

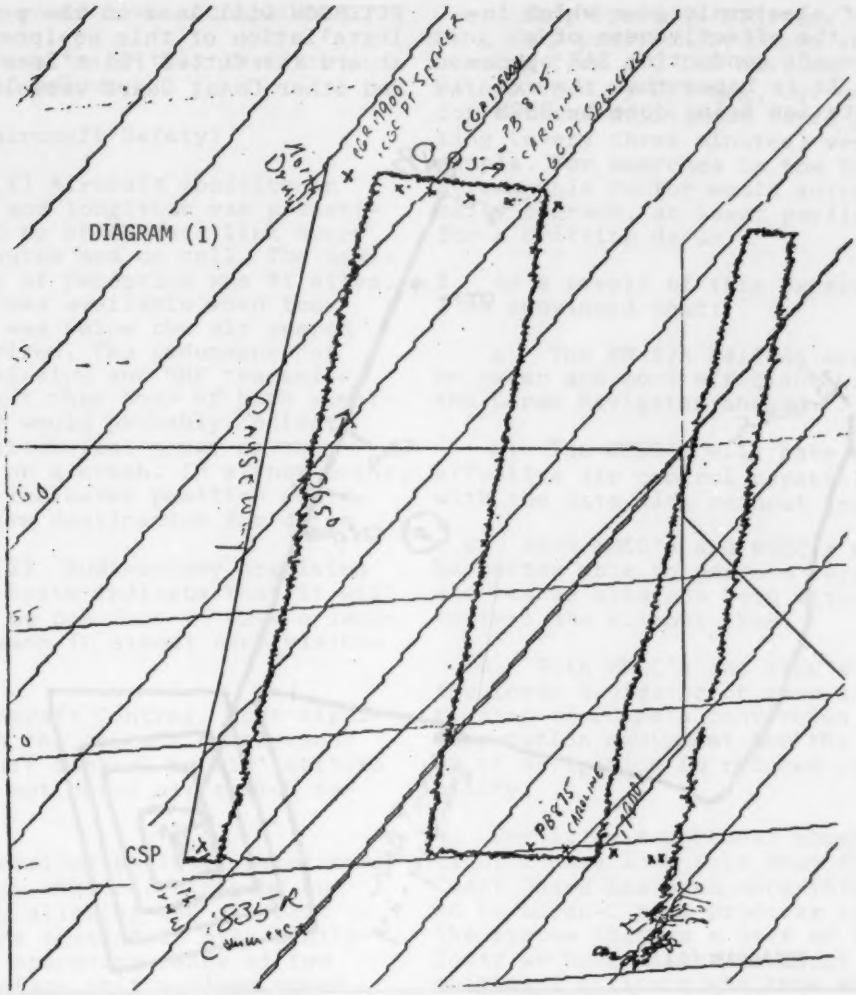
Coast Guard Cutter POINT SPENCER (WPB 82349), assigned to Group New Orleans, La, has a LORAN C RECEIVER/PLOTTER unit installed on an experimental basis. During the last few months, BMCM Peter L. PETERSON has proven this equipment to have unlimited capabilities, dependent only upon the operator's experience and imagination. It has been utilized for SAR, fog navigation, dead-reckoning plots, and most recently, in conducting a VHF-FM communications survey using a radius vs time plot in reference to a remote transceiver tower located in Venice, La.

The following graphic representations made by the LORAN C plotter illustrate dramatically what the equipment can do.

Diagram (1) represents a parallel multiple unit (PM) search executed during a multi-agency SAREX which took place on Lake Pontchartrain on 23 July 1976. The bold, nearly vertical lines are the plot of Cutter Point Spencer's track and the small X's represent the small Coast Guard Reserve, Coast Guard Auxiliary, 40 FT UTB and civilian craft involved in the search.

The search paralleled the Lake Pontchartrain Causeway and covered an area approximately sixty-four (64) square miles. The track spacing of the Point Spencer varied during the search because, initially, the Point Spencer and the CGR 179001 were the only units on-scene at the southwest corner CSP and were joined by the New Orleans Police Boat 875 and CG Auxiliary Caroline at the northern end of the search area after completing their first leg. Also the track spacing of the pattern was tightened up on the fourth vertical leg as darkness cut down on visibility.

Diagram (2) is a plot made

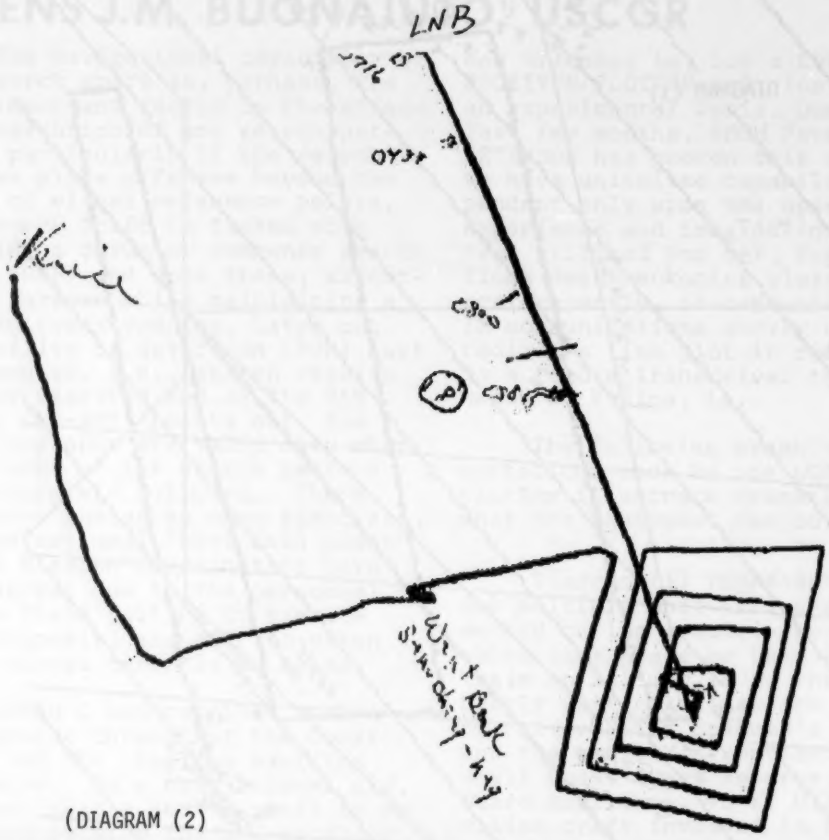


during an actual SAR case when the Point Spencer was deployed to search for an overdue fisherman in Breton Sound on 10 August 1976. The track began at the large navigational buoy (LNB) located at 29-26.4N 88-56.9W. to centerpoint of assigned search area at 28-56N 88-36W where an expanding square (SS) pattern was commenced. Track spacing was two (2) miles which was maintained closely with the exception of the northern west-to-east legs which were affected by a strong sea current as shown in the plot presentation. The plot continued subsequent to departing the search area until arrival at Coast Guard Light Attendant Station Venice where the Point Spencer refueled and spent the night pending resumption of the search the next morning. After tying up at LASTA Venice a copy of the plot was sent to RCC in New Orleans by facsimile telecopier where it was analysed by the SMC for planning future searches, and later on for debriefing.

It should be noted that in the event of any legal action following a SAR incident, the graphic plot provides a record of a professional search conducted by search personnel.

It is the opinion of this Officer that the LORAN C RECEIVER/ PLOTTER is a highly functional

piece of electronic gear which increases the effectiveness of a search craft conducting SAR operations. It is hoped that the experimentation being done by BMCM PETERSON will lead to the permanent installation of this equipment aboard the Cutter Point Spencer and other Coast Guard vessels.



(DIAGRAM (2)

OPERATIONAL TEST OF TDL-424 LORAN NAVIGATOR

The following is the text of a most informative letter addressed to the Commandant (via the chain of command, of course) from Captain William R. Fearn, who is the commanding officer of the USCGC MORGENTHAU (WHEC-722). Herein, Captain Fearn outlines the results of an operational test of the TDL-424 Loran Navigator.

1. During the period 18 June through 2 July 1976, MORGENTHAU operated with HH-52A CG No. 1460 which had the Teledyne Loran Navigator installed. MORGENTHAU also had a Teledyne data link termination installed in CIC and for part of the time had a second Loran Navigator located in the Wheelhouse. The opportunity to use this equipment operationally while accompanying the tall ships from latitude 35 degrees North to Newport and then to New York was unique. Also the Loran-C outfit of MORGENTHAU, which contains two receivers, (TDL-601 and ADL-21) and C-LAD, enabled us to achieve more during the period than a simple test of the Loran

Navigator would have accomplished.

2. The results of this test are summarized below:

a. Aircraft Safety:

(1) Aircraft position in latitude and longitude was presented in CIC by HF-AM data link every three minutes and on call. The maximum range of reception was 81 miles. Position was available when the aircraft was below the air search radar horizon. The redundancy of HF transmission and UHF transmissions meant that loss of both simultaneously would probably indicate loss of electrical power on the aircraft or a crash. In either event, the last indicated position would give a firm destination for datum.

(2) Rudimentary precision approach tests indicate that it will probably be possible to make a landing approach in almost zero visibility.

b. Aircraft Control. Most significant is the certain enhancement of aircraft control by 210' cutters which do not carry air search radars.

c. Operating Radius. Operational efficiency will certainly be enhanced by allowing the aircraft to exceed the present 25 mile limitation. An operating range of two times surface unit maximum speed is suggested.

d. Search Efficiency.

(1) The search legs were defined by latitude and longitude of end points.

(2) The aircraft flew the legs using its own instrumentation.

(3) Track spacing was more accurate than could be accomplished by radar control.

(4) Track spacing and leg length of the creeping line search could be accommodated to aircraft parameters rather than ship speed.

e. Ship Position Plotting. Plotting ship position by range and bearing from a C-LAD destination, rather than by DRT bug, corrected for set and drift made rapid plotting (every three minutes) very simple. For searches in the Gulf Stream this factor would automatically correct, at least partially, for a drifting datum.

3. As a result of this experience, I am convinced that:

a. The HH-52A helicopters will be safer and more efficient with the Loran Navigator aboard.

b. The WMEC's will have a more effective air control capability with the data link readout installed.

c. Both WMEC's and WHEC's would be better able to perform search and rescue missions both with helicopters and without them.

d. Both WMEC's and WHEC's need the Loran Navigator or more sophisticated coordinate conversion and computation equipment for the safety of navigation in reduced visibility.

4. Permit me a personal observation. I have long felt that the Coast Guard has been more interested in Loran-C as a producer of the system than as a user of it. Today we have almost no Coast Guard shipboard officers who know anything about Loran-C beyond the use of time differences and charts. Without at least a rudimentary coordinate conversion capability we are losing the major benefits of the Loran-C system, guidance and repeatable accuracy; we are little better off than we were with Loran-A. Coordinate conversion equipment such as the C-LAD, and better, are now priced within our reach. If we get them now, not waiting for the optimum model, we will be able to speak with assurance from experience to potential users; and, more importantly, we will be able to navigate through areas where we have been before with greater safety in all weathers.

IDEAS FROM THE NINTH DISTRICT

Editors Note: *The following items are reprinted from the SAR Newsletter of the 9th Coast Guard District 9/76 as they may be helpful to other districts.*

FLARE SIGHTINGS

An entire section of Appendix I to Annex India is devoted to this subject (TAB U). Flare sightings are possibly the most frustrating type of SAR case, due to the infrequency with which they prove to be actual distress cases. A flare, however, indicates real and immediate distress of some kind if it is legitimate. Each flare sighting must be treated accordingly. We cannot afford to disregard or half-heartedly search for the source of a flare. We have to put forth our best effort on each sighting. Many lives have been saved because of good response to a flare sighting.

Generally red flares indicate distress, but when someone gets into trouble they will use whatever signalling device is available including white and green flares or lights.

If the source of a flare is not located at night, count on a first light search. Harbor checks also need to be conducted to turn up any overdue boats as quickly as possible.

SAR COUNCILS

Group SOO is experimenting with a SAR Council composed of various civil organizations in the local area with an interest in or responsibility for SAR. This is not a new concept, but one which is perhaps not used enough. It can be organized on a group or station level and should be composed of such organizations as the local police, fire department, Civil Air Patrol, Coast Guard Auxiliary, Boy Scouts, etc. The idea is to provide a forum for ideas, a chance to meet with others involved in SAR and an opportunity to formulate some sort of community action plan for major SAR cases and natural disasters.

Meetings should be held as often as necessary, more frequently during the early stages. The public should be encouraged to provide input and provided with information on the council's proceedings. Local news media may be used for this.

One word of caution: Only the District Commander is authorized to make agreements on behalf of the Coast Guard. If a question of legality or authority comes up, contact the district for advice and assistance.

A good working relationship with the community is a valuable SAR tool.

Editor's Postscript: *Other Districts are invited to share your good ideas through the pages of ON SCENE. There is a continuing need to use our collective brain power to improve our SAR Services.*

DATUM MARKER BUOY USE

Another case study has been received which concluded that datum marker buoys should have been used to obtain an empirical estimate of the surface current. Amendment No. 2 to the National SAR Manual contains more direction than ever before on this use of Datum Marker Buoys. All operating SAR units should review the new paragraph 814-On Scene Observations in the Manual.

NIGHT SUN AND WPB SEARCH-LIGHTS RESULT IN TWO LIVES SAVED

A Cessna aircraft, with 3 persons on board, ditched off San Diego, California on 11 September 1976. A coordinated night search by a Coast Guard helicopter from Air Station, San Diego and the CGC PT BROWER resulted in the saving of two of the survivors from the water. The illumination provided by the helicopter Night Sun searchlight and the PT BROWER searchlight was a primary factor in the rescue. The alertness of the crew of the PT BROWER in listening for the cries from one survivor in the darkness also made a major contribution to that particular rescue. The following account is verbatim from that given to the National Transportation Safety Board by the crew of the helicopter and was provided to ON SCENE by the pilot, LT Victor P. PRIMEAUX.

THE SAR ALERT

We were awakened about 0215 hours, 11 Sept. 1976, by the Senior Duty Officer, Lt. Peter HOFFMAN, to launch the ready helicopter for an aircraft which had been reported offshore and running dangerously low on fuel. While our helo was being towed out of the hangar we were advised that the Cessna had in fact ditched and the persons on board were unaccounted for. We became airborne at 0226 hours with the super-high intensity "Night-Sun" searchlight attached to aid in our search of debris and persons in the water. The weather on take-off from our ramp adjacent to the southeastern corner of Lindbergh Field was about 700 ft overcast, light rain and 3 miles visibility, wind 180 degrees at 15 knots.

On takeoff Lindbergh Tower advised that the Cessna had ditched and last known radar position was on the ILS localizer front course at GATO Intersection where the aircraft was tracked momentarily turning south as it disappeared from the scope. The pilot had reported fuel starvation to the tower just as he went off the scope. The Tower advised us they would keep us in constant radar coverage if possible so we did not come up RATCC (Radar Traffic Control Center) Miramar frequencies at any time during our search.

SEARCH STARTED

Just as we crossed over the shoreline we set up to fly the localizer outbound but we were forced to go down to 200 feet to 300 feet because of the lowered ceiling offshore. We set up this low altitude search in the immediate area around GAIO Intersection after flying out the localizer until the 8 mile DME (Distance Measuring Equipment).

We sighted no debris whatsoever in the GATO area and no oil slicks of any kind. Around 0300 hours the weather began a rapid improvement offshore although it remained as before over the inland and beach areas. The ceiling lifted to 1000 feet broken to overcast, visibility 15 miles and winds 180 degrees at 10 knots with a generally

confused sea at 3 to 4 foot wave height.

It was at this time that a planned search pattern was set up with the assistance of the Coast Guard Cutter Pt. Brower arriving on scene. She began a concentrated search around GATO and we began a north-south search pattern creeping westward at 200 feet altitude using all available exterior lightning. Our search legs extended from just north of a line running thru the NEL Tower offshore south to the tip of Pt. Loma. We extended our search legs this far north as a built in safety factor and as far south as we did since the Cessna had apparently turned south into the wind for her ditching maneuver at 2000 feet and would have probably glided some distance.

On one leg just south of the localizer and about 3 miles offshore, the copilot ordered a smoke float dropped to mark what he had thought was some debris sighted in the water. However, an intensive search of the area revealed nothing.

THE FIRST SURVIVOR

Soon thereafter, on a southbound leg on the very northern edge of our search area the copilot sighted what he believed was a man in the water pass into the illumination of the Night Sun search light and he shouted "man waving his arms from the water, drop a smoke!". We immediately did a 360 degree turn and came into a hover near the smoke float in approximately 32-46.0N, 117-17.5W. We scanned the area with the nose search light and saw a man wildly waving his arms at us. We landed in the water with our rescue platform out the door, water taxiied to the man (the pilot of the Cessna) and the crewmen brought him into the cabin at 0334 hours.

Once inside the cabin we wrapped him in blankets and turned on the cabin heater and found him to be in fairly good condition and had him talk with us on the intercom. He said that he had simply run out of gas and ditched the aircraft. He said that the Cessna stayed afloat for only one minute and he and the two passengers evacuated the aircraft with no apparent injuries but that they had no floatation equipment whatsoever or signalling gear. He said that his girl friend drowned after he could no longer help her stay afloat and that the male passenger, a good friend, had begun to swim to shore. He stated that he felt in good enough condition to let us stay on scene and continue the search for his buddy.

THE SECOND SURVIVOR

We dropped a 45 minute smoke float in this position and radioed to the Pt Brower to move over to it and concentrate her search in that immediate area for the other survivor. We used the helo to make a hover search to the shoreline and along the NEL Tower pilings and the beach/surf line to help find the male passenger. While returning to the position of the Pt. Brower she radioed us to stand off and keep our rotor noise out of the area because she had heard a man calling out for help somewhere near the smoke float position.

A short while later the Pt. Brower radioed that they had the missing man in her search light, about 300 yards east of the smoke

float, and were throwing lighted life rings to him. At 0405 hours we landed in the water next to the survivor, brought him on board and wrapped him in blankets on the return trip to the Coast Guard Air Station. We landed there at 0412 hours and transferred the two survivors to an awaiting ambulance which brought the two men to University Hospital.

THE REPORTING FLIGHT CREW

V.P.PRIMEAUX LT USCG Aircraft Commander	E.J.WILLIAMS LT USCG Copilot
M.J.GARSOW AE1 USCG Avionicsman	M.P.CHAPMAN AM2 USCG Flight Mechanic

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